

ABSTRACT

This invention is directed to a monopartite RNA viral vector comprising modified tobavirus RNA-1 comprising an inserted foreign RNA sequence. This invention is also
5 directed to a bipartite RNA viral vector derived from a tobavirus, wherein the vector comprises one or more foreign RNA sequences . The invention is directed to a method of silencing one or more endogenous plant host genes and a method of simultaneously silencing a plant host gene and expressing a foreign gene in a plant host. Such methods comprise infecting a plant host with a bipartite vector comprising modified tobavirus
10 RNA-1 and RNA-2. The invention is further directed to a method of compiling a plant functional gene profile, a method of changing the phenotype or biochemistry of a plant host, and a method of determining the presence of a trait in a plant host, using a monopartite or bipartite viral vector derived from a tobavirus.